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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,292	12/15/2003	John T. Petrick	TD14/09	3770

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EXAMINER

HAN, JASON

ART UNIT PAPER NUMBER

2875

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/736,292	Applicant(s) PETRICK, JOHN T.	
	Examiner Jason M. Han	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 is/are allowed.
- 6) ☒ Claim(s) 2-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Pages 10-12, filed April 6, 2005, with respect to Claim 1 have been fully considered and are persuasive. The rejection of Claim 1 has been withdrawn.
2. Applicant's arguments with respect to Claims 2-3 and 4-7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

3. Claim 4 is objected to because of the following informalities: Applicant recites, "the base" in line 2 of the claim, which lacks antecedent basis. The below rejection has been based on the best-deemed interpretation by the examiner. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Applicant recites the limitation, "a Fresnel lens, the lens", which renders uncertainty given that there are two lenses defined by the applicant. The examiner has assumed the position that the applicant is referring to the lens of Claim 4 as being a Fresnel lens.

The following claims have been rejected in light of the specification, but rendered the broadest interpretation as construed by the examiner [MPEP 2111].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Theobald et al. (U.S. Patent 5567036) in view of Madadi et al. (U.S. Patent 5688042).
7. With regards to Claim 2, Theobald discloses an illumination system including:
 - A mounting plate [Figures 1-2: (80)];
 - A plurality of thermally conductive circuit boards [Figures 1-2: (90)] in thermal contact with the mounting plate [Figures 1-2: (94)];
 - A plurality of light emitting diodes [Figures 1-2: (100)] electrically and thermally communicating with the circuit boards;
 - An optical lens [Figures 1-2: (35)] formed as a translucent dome covering the circuit boards and light emitting diodes;
 - A base [Figures 1-2: (25)] operatively coupled to the mounting plate and lens;and

- An external electrical source to provide power to the system [Figures 1-2: (40a, 40b)].

Theobald does not specifically teach the illumination system including a converter to change alternating current received from the external electrical source to direct current power for the system.

Madadi teaches, "As seen in FIG. 1, the electrical circuit assembly includes an input AC film capacitor 16, which together with diodes 28 and a resistor 29, as seen in FIG. 5, convert the input AC (alternating current) to DC (direct current) as required by LEDs 26 without any step-down transformer as in common practice [Column 3, Lines 55-60]."

It would have been obvious to one ordinarily skilled in the art at the time of invention to modify the illumination system of Theobald to incorporate the AC to DC power conversion, as taught by Madadi, in order to ensure low voltage DC operation for the light emitting diodes. Such a configuration is commonly known in the art.

8. With regards to Claim 3, Theobald in view of Madadi discloses the claimed invention as cited above. In addition, Theobald teaches the base being of generally cylindrical configuration with an open top part [Figure 1: (53)], a closed bottom part [Figure 1: (25)], and a side face [Figure 1: (70)] there around, whereby the top part has a lip [Figure 1: (60)] adapted to lie adjacent the lower surface of the plate with an entrance aperture [Figure 1: (82a, 82b)] and flange [Figure 1: (52)] extending from the mounting base.

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9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Theobald et al. (U.S. Patent 5567036) in view of Bischoff, Jr. (U.S. Patent 6158882).

10. With regards to Claim 4, Theobald discloses an illumination system including:

- A mounting plate [Figure 1: (25)];
- A plurality of thermally conductive circuit boards [Figure 1: (90)] in thermal contact with the mounting plate [Figure 1: (94)];
- At least one pair of light emitting diodes [Figure 1: (100)], with each pair being operatically coupled to a circuit board wherein the diodes are adjacently disposed; and
- An optical lens [Figure 1: (35)] formed as a translucent dome, whereby the lens covers the circuit boards and light emitting diodes.

Theobald does not specifically teach the light emitting diodes being electrically connected in a parallel circuit configuration, nor an alternating current electrical power means being converted to provide a constant current to each light emitting diode pair.

Bischoff teaches, "The voltage converter can be a converter selected from a group consisting of a DC-DC type, an AC-DC type and a DC-AC type. The specific type of converter 51 selected is based on the specific application of the lighting apparatus [Column 5, Lines 31-35]... In addition, several light tubes 12 can be electrically connected, in series or parallel, depending on the application [Column 4, Lines 59-61]."

It would have been obvious to one ordinarily skilled in the art at the time of invention to modify the illumination system of Theobald to incorporate the AC-DC type converter and parallel electrical connections, as taught by Bischoff, in order to ensure

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low voltage DC operation for the light emitting diodes as well as continuous illumination despite failure of individual LEDs. Such configurations are commonly known in the art.

11. With regards to Claim 5, Theobald in view of Bischoff discloses the claimed invention as cited above. In addition, Theobald teaches a base being of generally cylindrical configuration with an open top part [Figure 1: (53)], a closed bottom part [Figure 1: (25)], and a side face [Figure 1: (70)] there around, whereby the top part has a lip [Figure 1: (60)] adapted to lie adjacent the lower surface of the plate with an entrance aperture [Figure 1: (82a, 82b)] and flange [Figure 1: (52)] extending from the base.

12. With regards to Claim 6, Theobald in view of Bischoff discloses the claimed invention as cited above. In addition, Theobald teaches the system including a plurality of conductive circuit boards [Figure 1: (100)] and a plurality of pairs of light emitting diodes [Figure 1: (90)].

13. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Theobald et al. (U.S. Patent 5567036) in view of Bischoff, Jr. (U.S. Patent 6158882) as applied to Claim 4 above, and further in view of Verdes et al. (U.S. Patent 6425678).

Theobald in view of Bischoff discloses the claimed invention as cited above, but does not specifically teach including the optical lens being a Fresnel lens, whereby the lens has a vertical position with the dome oriented upwards, producing a substantially Fresnel-type beam covering 360 degrees azimuthally, and producing at least 32.5 candela over a 10 degree beam band, centered between 4 and 20 degrees above a horizontal plane.

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Verdes teaches an LED obstruction lamp including a Fresnel lens with a vertical dome disposition [Figure 3: (11)], whereby the lamp meets the criteria as prescribed in the FAA Circular 150/5345-43 [Column 3, Line 50].

It would have been obvious to one ordinarily skilled in the art at the time of invention to modify the illumination system of Theobald in view of Bischoff to incorporate the Fresnel lens of Verdes, so as to ensure a desired optical effect on the illumination [e.g. wide angle of distribution/illumination].

Allowable Subject Matter

14. Claim 1 is allowed.

15. The following is an examiner's statement of reasons for allowance:

Applicant has sufficiently recited and narrowly claimed an illumination apparatus, whereby the prior art fails to teach or suggest the combination of structural elements disclosed and claimed herein, specifically thermally conductive L-shaped circuit boards with a specific mounting configuration, thereby providing for beneficial heat transfer within the system.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Han whose telephone number is (571) 272-2207. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMH (5/5/2005)


Stephen Husar
Primary Examiner